

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior listing of claims for the present application.

Claims 1-50 (Canceled).

51. (Previously presented) A method of forming a non-volatile resistance variable device comprising:

forming a substrate;

forming a projecting metal mass having an exposed outer surface on said substrate;

surrounding said exposed outer surface of said projecting metal mass with chalcogenide material;

diffusing a portion of said projecting metal mass outwardly into a portion of said chalcogenide material; and

forming an electrode over said chalcogenide material.

52. (Currently amended) The method of claim 51 wherein the step of forming a projecting metal mass having an exposed outer surface further comprises the steps of:

forming a metal layer over said substrate; and

patterning said metal layer into a projecting metal mass having an exposed outer surface.

53. (Currently amended) The method of claim 51 wherein said exposed outer surface of said projecting metal mass further comprises joining a top metal surface ~~joined~~ with opposing side metal surfaces at respective angles.

54. (Currently amended) The method of claim 51 wherein said exposed outer surface of said projecting metal mass further comprises joining a top metal surface ~~joined~~ with opposing side metal surfaces at respective angles within about 15 degrees of normal.

55. (Currently amended) The method of claim 51 wherein said portion of said projecting metal mass diffused outwardly into said chalcogenide material comprises less than all of said projecting metal mass.

56. (Currently amended) The method of claim 55 wherein ~~said portion~~ a portion of said projecting metal mass that is not diffused outwardly into said chalcogenide material is smaller but is substantially the same shape as said projecting metal mass before said portion of said projecting metal mass is diffused into said chalcogenide material.

57. (Previously presented) The method of claim 51 wherein said portion of said projecting metal mass diffused outwardly into said chalcogenide material comprises all of said projecting metal mass.

58. (Currently amended) The method of claim 51 wherein the step of surrounding said exposed outer surface of said projecting metal mass with

chalcogenide material further comprises blanket ~~depositing~~ deposition of chalcogenide material.

59. (Currently amended) The method of claim 51 wherein the step of diffusing a portion of said projecting metal mass outwardly into said chalcogenide material further comprises irradiating through said chalcogenide material to said projecting metal mass.

60. (Currently amended) The method of claim 59 wherein said step of irradiating further comprises irradiating through said chalcogenide material to said projecting metal mass with electromagnetic radiation having a wavelength less than about 500 nanometers.

61. (Previously presented) The method of claim 60 wherein said electromagnetic radiation has a wavelength of about 404 nanometers to about 408 nanometers.

62. (Previously presented) The method of claim 60 wherein said electromagnetic radiation has a wavelength of about 405 nanometers.

63. (Currently amended) The method of claim 51 further comprising the step of substantially selectively etching ~~[[the]]~~ a portion of said chalcogenide material into which ~~[[said]]~~ a portion of projecting metal mass has not been diffused, before said step of forming an electrode ~~[[of]]~~ over said chalcogenide material.

64. (Currently amended) The method of claim 63 wherein said step of substantially selectively etching comprises dry anisotropic etching.

65. (Currently amended) The method of claim 63 wherein said step of substantially selectively etching comprises dry anisotropic etching using a gas chemistry comprising CF_4 .

66. (Previously presented) A method of forming a non-volatile resistance variable device comprising:

forming a first metal layer over a substrate;

forming a second metal layer on said first metal layer;

patterning said second metal layer into a structure having an outer surface and exposing said first metal layer;

blanket depositing a chalcogenide material over said substrate on said second metal structure outer surface and on said exposed first metal layer; and

diffusing a portion of said of said patterned second metal outwardly into a portion of said chalcogenide material.

67. (Currently amended) The method of claim 66 further comprising the steps of:

substantially selectively etching ~~[[the]]~~ a portion of said chalcogenide material into which ~~[[said]]~~ a portion of said patterned second metal has not been diffused; and

after said step of substantially selectively etching, forming an outer electrode over ~~[[the]]~~ a remaining portion of said chalcogenide material into which said portion of said patterned second metal has been diffused.

68. (Currently amended) The method of claim 67 wherein said step of substantially selectively etching comprises dry anisotropic etching.

69. (Currently amended) The method of claim 67 wherein said step of substantially selectively etching comprises dry anisotropic etching using a gas chemistry comprising CF₄.

70. (Previously presented) The method of claim 66 wherein said portion of said patterned second metal diffused outwardly into said chalcogenide material comprises less than all of said patterned second metal.

71. (Currently amended) The method of claim 70 wherein ~~said portion a~~ portion of said patterned second metal that is not diffused outwardly into said chalcogenide material is smaller but is substantially the same shape as said patterned second metal before said portion of said patterned second metal is diffused into said chalcogenide material.

72. (Previously presented) The method of claim 66 wherein said portion of said patterned second metal diffused outwardly into said chalcogenide material comprises all of said patterned second metal.

73. (Currently amended) The method of claim 66 wherein the step of diffusing a portion of said patterned second metal outwardly into said chalcogenide

material further comprises irradiating through said chalcogenide material to said patterned second metal.

74. (Currently amended) The method of claim 73 wherein said step of irradiating comprising further comprises irradiating through said chalcogenide material to said patterned second metal with electromagnetic radiation having a wavelength less than about 500 nanometers.

75. (Previously presented) The method of claim 74 wherein said electromagnetic radiation has a wavelength of about 404 nanometers to about 408 nanometers.

76. (Previously presented) The method of claim 74 wherein said electromagnetic radiation has a wavelength of about 405 nanometers.